Training the GIS Professional

AVINEON TENSING

Training Course Outline

API-Driven Data Integration with ArcGIS Data Interoperability - 1 day

Overview

This hands-on, one-day course is for intermediate ArcGIS Data Interoperability users who are ready to connect their workspaces to the wider web. It starts by demystifying APIs, explaining how REST services and endpoints work and what GET, POST, PUT and DELETE requests actually do. You'll then put that into practice with the HTTPCaller transformer. You'll connect to ArcGIS Online and third-party REST services, work confidently with JSON and GeoJSON responses, and handle the errors that inevitably crop up. The course covers security too, showing how API keys, tokens and OAuth web connections differ and when to use each. You'll also tackle pagination, building workspaces that retrieve the complete dataset whether an API reports a total record count or simply points to the next page. Finally, you'll package your API logic into reusable Custom Transformers, giving you tidy, shareable connectors to drop into any spatial ETL workflow.

Please note: This course was previously called Using APIs in Esri Data Interoperability workflows, please do not reattend as the content is similar.

Who should attend

- GIS Analysts
- GIS Technical Leads
- GIS Professionals
- GIS Application Developers

Goals

- The fundamentals of APIs and how they are used for modern geospatial data integration.
- How the Data Interoperability Extension communicates with external services including ArcGIS REST APIs and how to set up API connections.
- Using the HTTPCaller transformer for making API requests and handling responses.
- Processing and parsing JSON and GeoJSON data returned from API calls.
- Building reusable Custom Transformers to streamline and scale API integrations across your organisation.
- Working with both public and private APIs including ArcGIS Online services and third party web services.

Topics Covered

- Understanding APIs including what they are, how RESTful services work, HTTP methods (GET, POST, PUT, DELETE) and authentication approaches including API keys, OAuth and token-based authentication.
- Setting up API connections in Data Interoperability Workbench, configuring web connections for ArcGIS Online, ArcGIS Enterprise and external web services, managing credentials and authentication.
- The HTTPCaller transformer for making HTTP requests, configuring request headers and parameters for ArcGIS REST APIs and handling response codes and error conditions.

Topics Covered Continued

- Working with JSON and GeoJSON, including parsing responses, extracting nested data structures, handling arrays and complex objects and using the JSONFlattener and JSONFragmenter transformers to populate geodatabase feature classes.
- Building Custom Transformers to create reusable API integration components, parameterising transformers for flexibility and sharing API integrations.
- Practical API integration including working with public APIs for geocoding, address lookup and data enrichment, connecting to ArcGIS Online and ArcGIS Enterprise REST services and combining data from multiple API sources into your geodatabase.
- Error handling and reliability including handling API failures gracefully (including connection timeouts), implementing retry logic for web service calls, logging and monitoring API interactions and rate limiting considerations for ArcGIS Online credits.

Prerequisites

- Attendees should have a basic working knowledge of ArcGIS Data Interoperability for ArcGIS Pro and be comfortable running a workspace, using readers and writers for common spatial formats such as Shapefile, GeoJSON and file geodatabase, and applying basic transformers to manipulate data. No prior experience of AI or machine learning is needed.

Contact Us

For GIS training enquiries and bookings visit esriuk.com/learning, email us at learning@esriuk.com or call us on 01296 745504

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